

REMARKS

Claims 1-36 are pending in the application. Applicants respectfully request reconsideration, reexamination, and allowance of the above-captioned application.

AMENDMENTS:

Claims 1, 16, 26, 29 and 30 have been amended to recite that the air-laid non-woven gauze is "a carded, porous, penetrable gauze layer" and that "a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent." Support for these amendments can be found throughout the specification.

ART REJECTIONS:

RUFFO

Page 2 of the Office Action sets forth a rejection of Claims 1-3, 7-10, 29, and 31 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Ruffo et al.*, U.S. Patent No. 4,018,646. Page 3 of the Office Action sets forth a rejection of Claims 4-6 and 11-15 as being obvious over *Ruffo et al.*

In paragraph 3 of the Office Action, the Examiner responds to applicants' arguments filed on 2/2/05. The Examiner asserts that *Ruffo* teaches an absorbent material which comprises an air laid gauze according to the present claims. However, the claims at issue, 1-15, 29 and 31, as amended, generally recite an absorbent material wherein a carded, porous, penetrable, non-woven gauze is air-laid with an air-doffing apparatus card. Absorbent material is then obtained by directly dry-laying the cellulose fibres on the gauze so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Ruffo* does not teach such an invention. The material of *Ruffo* is a different material made a different way and *Ruffo* provides no suggestion or motivation to modify this different material such that one skilled in the art would arrive at the presently claimed invention.

As discussed in the specification at page 4, the claimed process of air-laying the textile fibres uses an air-doffing apparatus card to create a carded, porous, easily penetrated non-woven gauze, such that air-laid cellulose fibres penetrate into the gauze to become integrated therewith. This specifically claimed carded gauze has textile fibres that are generally aligned in one direction and has a reduced number of fiber clumps. As a result, the non-woven gauze is more easily penetrated by the short cellulose fibres, allowing the resulting mat to be sufficiently bonded without any bonding agent.

Ruffo does not teach or suggest the claimed carded, porous, penetrable gauze layer. The carded gauze layer of the presently claimed invention is porous and penetrable such that a portion of the cellulose fibres effectively penetrate the gauze fiber interstices to achieve sufficient bonding with the textile fibres without the need of a binder.

Ruffo teaches textile fibres that have been individualized by lickerins. *Column 17, lines 53-64.* Lickerins defibrate the fibres but only to a certain degree. Small chunks and bits of fiber are left within the layer that is air-laid. Moreover, the fibres are air-laid in a random pattern. Thus, *Ruffo* does not teach or suggest the presently claimed invention which requires a carded gauze layer.

Further, *Ruffo* only teaches bonding techniques that require adhesive binder or mechanical interlocking by means of needle looms, high pressure water streams and the such. *Column 13, line 34 through Column 14, line 2.* Such bonding techniques are required with the gauze taught by *Ruffo* because it cannot be penetrated by cellulose fibres to achieve sufficient bonding. However, the presently claimed invention recites that the absorbent material is obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that a portion of the cellulose fibres penetrate into the gauze to achieve sufficient bonding. Therefore, *Ruffo* does not teach or suggest the presently claimed invention.

Also, the Examiner has asserted that *Ruffo* teaches a comparable two layer system at column 22, lines 17-34. However, this two layer web is comprised of gauze that is not similar to the claimed gauze because it is not carded and cannot be

penetrated by cellulose fibres so that they penetrate into the gauze layer to achieve sufficient bonding. Moreover, the described two layer system in *Ruffo* is laid such that the bottom layer is cellulose fiber and then textile fibres are laid on top of that cellulose layer. This results in an absorbent material very different from the present invention. Merely flipping this material over so that the cellulose fibres are on top of the textile fibres does not provide or suggest a material according to the present claims. The present claims recite a carded gauze wherein a portion of the cellulose fibres penetrate the gauze fiber interstices to achieve sufficient bonding with the textile fibres without the need of a binder. The two layer system of *Ruffo* is quite different. Because the cellulose is air-laid first, followed by randomly laid, "chunky" textile fibres, a portion of the bottom cellulose layer does not penetrate into the gauze to achieve sufficient bonding. Thus, the different process of the present claims results in a substantially different product from that of *Ruffo*.

The material of *Ruffo* is different than the presently claimed material. *Ruffo* does not teach or suggest the carded, porous, penetrable (penetrable to cellulose fibres) gauze layer. *Ruffo* also teaches a two layer material that is produced in a substantially different manner which results in a substantially different product.

For at least these reasons, claims 1-15, 29 and 31 are neither anticipated nor obvious based on the disclosure of *Ruffo*.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-15, 29, and 31 over *Ruffo*.

MATSUMURA

Claims 1-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551.

Claims 1-15, 29 and 31 are directed to an absorbent material or structure and claims 16-28, and 32 are directed to a method of producing an absorbent material. However, the claims at issue generally recite an absorbent material or a method for producing an absorbent material wherein a carded, porous, penetrable, non-woven

gauze is air-laid with an air-doffing apparatus card. Absorbent material is then obtained by directly dry-laying the cellulose fibres on the gauze so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent.

The combination of *Matsumura*, *Ruffo*, and *Fehrer* does not teach or make obvious the present invention. *Matsumura* does not teach or suggest that bonding occurs in the absence of a bonding agent, but instead employs a binder. Also, *Matsumura* does not teach or suggest the specifically claimed carded, porous, penetrable gauze. The carded gauze layer is porous and penetrable such that a portion of the cellulose fibres penetrate into the gauze to achieve sufficient bonding with the textile fibres without the need of any bonding agent. These deficiencies are not remedied by *Ruffo* or *Fehrer*.

A. *MATSUMURA DOES NOT TEACH THAT BONDING OCCURS*
IN THE ABSENCE OF A BONDING AGENT

As conceded by the Examiner, *Matsumura* does not teach that bonding occurs in the absence of a bonding agent, but instead employs a binder. The Examiner relies on *Ruffo* to cure this deficiency. Specifically, the Examiner relies upon *Ruffo* for the conclusion that mechanically interlocking the fibres with a needle loom would have been obvious to use in *Matsumura* to bind the web as an equivalent to using a binder. With due respect, the teachings of *Ruffo* do not cure the deficiency of *Matsumura*.

Based on the above-mentioned teachings of *Ruffo*, one of ordinary skill in the art would not be motivated to substitute mechanical bonding with the adhesive bonding taught by *Matsumura*.

Ruffo does not teach that the use of a bonding agent and mechanically interlocking the fibres are "equivalent" methods of bonding fibrous webs. In fact, *Ruffo* teaches that the "particular type of bonding technique chosen will depend on various factors well-known to those skilled in the art, e.g. the type of fibres, the particular use of the products, etc." See *Column 12, line 65 through Column 13, line*

1. *Ruffo* does not teach that one skilled in the art can randomly substitute mechanical bonding for adhesive bonding. Instead, *Ruffo* is simply suggesting that, based on a particular set of factors, a particular type of bonding may be used. In *Matsumura*, one skilled in the art selected binders as the bonding technique of choice based on their particular set of factors. *Matsumura* provides no suggestion to modify this choice of the use of binders. That is, *Ruffo* simply suggests that one skilled in the art will pick a bonding technique based on various factors and has not suggested, with the set of factors in *Matsumura*, a substitution of mechanical binding for the use of adhesive binders for the *Matsumura* set of factors. Thus, the asserted teaching of *Ruffo* provides no motivation to substitute mechanical bonding for adhesive binders based on the *Matsumura* set of factors.

Based on the above-mentioned teachings of *Ruffo* and *Matsumura*, one of ordinary skill in the art would not be motivated to substitute mechanical bonding with the adhesive bonding taught by *Matsumura*. The Examiner relies upon *Fehrer* only for the teaching of a card. Thus, *Fehrer* does not otherwise overcome the deficiency of the combination of *Matsumura* and *Ruffo*. Accordingly, claims 1-32 are clearly patentable over the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

**B. MATSUMURA DOES NOT TEACH THE CLAIMED CARDED
POROUS, PENETRABLE GAUZE**

The present invention describes a material that has a carded, porous, penetrable gauze layer.

First, such a material is not taught by *Matsumura*. The Examiner asserts that this is remedied by the teachings of *Fehrer*. Specifically, the Examiner asserts that one of ordinary skill in the art would have been motivated to employ the apparatus of *Fehrer* to form the fabric of *Matsumura* because *Matsumura* teaches that carded fibres should be supplied to the air doffing apparatus. However, *Matsumura* does not teach that carded fibres should be supplied to the air doffing apparatus. The Examiner relies on the disclosure of a fiber lap that was previously opened by

carding. However, *Matsumura* teaches that this fiber lap should then be defibrated by lickerin roll. *Column 8, lines 35-38.* Moreover, the use of the lickerin is specifically taught by *Matsumura* to be used in the place of carding. *Matsumura* discloses that carding should not be used because carding results in easy delamination of the two layers of the sheet. *Column 3, lines 24-30.* Whereas, according to *Matsumura*, the use of a lickerin results in "little difference between the layers in strength and elongation, thus making it a non-woven material difficult to delaminate." *Column 3, lines 46-48.* Moreover, *Matsumura* discloses another advantage of using a lickerin unit with the *Matsumura* process is that "random webbing of 3 gm/M² of rayon with 1 lickerin unit is attained at a speed of 100 M/min." *Column 3, lines 7-9 (emphasis added).* Whereas carding results "in great difficulties in making a 2 gm to 5 gm/M² sheet of rayon independently." *Column 3, lines 23-24.*

Thus, one skilled in the art reviewing *Matsumura* would not modify the teaching of *Matsumura* with the teaching of *Fehrer*. *Matsumura* teaches away from modifying the *Matsumura* process with a *Fehrer* type card. Thus, it is improper to combine *Fehrer* with *Matsumura* to arrive at the presently claimed invention. Accordingly, a carded, porous, penetrable gauze layer is not taught or suggested by the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

Moreover, the method of *Matsumura* requires a seal roll to protect the textile mat from blow back. *Column 8, lines 51-55.* This seal roll compresses the textile mat. After the seal roll compression, the gauze layer is not sufficiently penetrable to the cellulose fibres. That is, a portion of the cellulose fibres cannot penetrate into the seal roll compressed gauze of *Matsumura* to achieve a sufficient bonding with the textile fibres without any bonding agent. Thus, because of the seal roll compressed gauze layer of *Matsumura*, *Matsumura* does not teach or suggest the presently claimed absorbent material. The Examiner's reliance on *Ruffo* and *Fehrer* does not remedy this deficiency. Thus, combination of *Matsumura*, *Ruffo*, and *Fehrer* does not teach or suggest every element of the presently claimed invention.

Accordingly, claims 1-32 are clearly patentable over the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

Claims 33-36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551, and further in view of WO 97/45083 to *Roseland*.

Claims 33-36 depend from either claims 1 or 16 and are patentable over *Matsumura*, *Ruffo* and *Fehrer* at least for the reasons set forth above. The Examiner relies on *Roseland* solely for the teaching that HTCTMP and flash dried pulp can be employed to form airlaid nonwoven. Thus, *Roseland* does not otherwise overcome the deficiency of the combination of *Matsumura*, *Ruffo* and *Fehrer*.

Accordingly, claims 33-36 are patentable over the combination of *Matsumura*, *Ruffo*, *Fehrer*, and *Roseland*.

CONCLUSION:

The Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

All of the outstanding matters having been addressed, favorable action on the application is requested. Should the Examiner have any questions regarding this Amendment, or regarding the application in general, she is invited to contact the undersigned at the number listed below.

Respectfully submitted,
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